

CALIFORNIA COASTAL COMMISSION

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November 20, 2002

To: Coastal Commissioners and Interested Persons

From: Peter M. Douglas, Executive Director
Jaime C. Kooser, Deputy Director, Energy, Ocean Resources and Water Quality
Alison J. Dettmer, Manager, Energy and Ocean Resources Unit
Marina Cazorla, Analyst, Energy and Ocean Resources Unit

Subject: Commission Determination of Conformity with the Coastal Act of the Coastal Conservancy's Enhancement Plan *In Progress Review: Ancillary Data and Observations from Caulerpa Taxifolia Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbor of the Southern California Caulerpa Action Team (SCCAT)*.

1. INTRODUCTION

Pursuant to Public Resources Code Section 31258, the Coastal Conservancy requests the Commission to determine that the Conservancy's enhancement plan for the eradication of a highly environmentally hazardous invasive alga, *Caulerpa taxifolia* (hereafter, "Caulerpa"), is consistent with Coastal Act policies. Such a determination will allow the Coastal Conservancy to disburse a \$1,000,000 grant for funding of ongoing Caulerpa eradication work.

2. STAFF RECOMMENDATION

Motion: I move that the Commission find that the Coastal Conservancy's enhancement plan *In Progress Review: Ancillary Data and Observations from Caulerpa Taxifolia Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbor of the Southern California Caulerpa Action Team* conforms with the policies of the Coastal Act.

Recommendation: The staff recommends a YES vote. Passage of the motion will result in adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present:

Resolution: The Commission hereby finds that the Coastal Conservancy's enhancement plan *In Progress Review: Ancillary Data and Observations from Caulerpa Taxifolia Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbor of the Southern California Caulerpa Action Team* conforms with the policies of the Coastal Act.

3. BACKGROUND ON CAULERPA TAXIFOLIA

On June 12, 2000, Merkel & Associates biologists surveying transplanted eelgrass discovered the invasive, non-native green alga *Caulerpa taxifolia* ("Caulerpa") in Agua Hedionda Lagoon in San Diego County. This discovery marked the first time that Caulerpa was known to have occurred in the Western Hemisphere. On July 27, 2000, Caulerpa was found to be present in Huntington Harbor in Orange County. Caulerpa grows quickly as a dense smothering blanket, covering and killing all native aquatic vegetation in its path when introduced in a non-native marine habitat. Fish, invertebrates, marine mammals, and sea birds that are dependent on native marine vegetation could be displaced or die off from the areas where they once thrived. While warmer southern California habitats are most vulnerable, the whole California coast is at risk. All shallow marine habitats could be impacted. If this alga were to become established permanently along the State's coastline, it would have devastating ecological consequences.

In June 2000, the Southern California Caulerpa Action Team ("SCCAT") was established to respond quickly and effectively to the discovery of Caulerpa infestations in Southern California. The group consists of representatives from several State, federal, local and private agencies and is led by Robert Hoffman of the National Marine Fisheries Service ("NMFS"). The goal of SCCAT is to completely eradicate all Caulerpa infestations.

On August 7, 2000, the Executive Director of the Coastal Commission issued to Merkel & Associates, on behalf of NMFS and the California Department of Fish and Game ("CDFG"), Emergency Permit 6-00-99-G to eradicate Caulerpa from a small area of the inner Agua Hedionda Lagoon. The program included placement of tarps over areas of Caulerpa, treatment with chlorine, and capping the areas to preclude regrowth. On April 17, 2002, the Executive Director issued Emergency Permit E-02-012-G to NMFS for further eradication and monitoring activities (which superseded Emergency Permit 6-00-99-G). On July 5, 2002, NMFS submitted to the Coastal Commission a general consistency determination (CC-051-02) to cover past and future Caulerpa eradication efforts. Consistency determination CC-051-02 is scheduled for the Commission's consideration at the December 2002 hearing.

In October 2002, the SCCAT applied to the Coastal Conservancy for a \$1,000,000 grant to fund ongoing Caulerpa eradication efforts. The Conservancy has prepared the subject enhancement plan to govern the grant. Public Resources Code Section 31258 requires the Commission to make findings regarding the conformity of enhancement plans with the Coastal Act. The

purpose of this staff report is to assess the enhancement plan for Coastal Conservancy funding of Caulerpa eradication work and its conformity with the Coastal Act.

4. SUMMARY OF THE ENHANCEMENT PLAN

The enhancement plan, entitled *In Progress Review: Ancillary Data and Observations from Caulerpa Taxifolia Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbor of the Southern California Caulerpa Action Team*, describes ongoing and future Caulerpa eradication efforts and enhancement and restoration work for affected areas. Section 31258 of Division 21 (Coastal Conservancy) of the California Public Resources Code requires that:

- (a) *Following completion of a coastal resource enhancement plan, the conservancy shall forward the plan to the commission for determination of conformity of the plan with the policies and objectives of Division 20 (commencing with Section 30000). The commission shall have 60 days to review the project and transmit the findings on the plan to the conservancy. If no comments are received within the period, the restoration plan shall be deemed to be in accord with Division 20 (commencing with Section 30000).*
- (b) *Where the enhancement plan will be implemented in whole or in part in an area in which the commission retains coastal development permit jurisdiction pursuant to subdivision (b) of Section 30519, or in an area in which two or more local governments have jurisdiction, or where a local coastal program amendment is required to implement the plan, the commission shall be responsible for enhancement plan review and shall conduct the review in the following manner. The commission shall review the enhancement plan for consistency with the policies and objectives of Division 20, as provided in subdivision (a), for the area subject to retained coastal development permit jurisdiction pursuant to subdivision (b) of Section 30159 and where a local coastal program amendment is required, and shall review the plan for consistency with certified local coastal programs for areas under local government coastal development permit jurisdiction.*

The areas in which the enhancement plan will be implemented are all in open waters within the Coastal Commission's retained coastal development permit jurisdiction, therefore no local review of the enhancement plan's consistency with a local coastal program ("LCP") is required. The enhancement plan consists of two categories of activities: (a) Caulerpa eradication, containment, and access restrictions; and (b) Caulerpa surveying at infestation sites, and surveillance in areas of infestation sites and in areas at highest risk of infestation.

Eradication, Containment and Access Restrictions

Eradication or "treatment" of Caulerpa is achieved by installing impermeable polyvinyl chloride sheets or tarps, which form enclosures over infested areas that are weighted down by geo-textile bags filled with sand. Chlorine in the form of either solid "pucks" or liquid solution is then inserted into these tarp-covered infested areas to bleach and kill the Caulerpa. Following treatment, sediment cores within selected treated patches are examined to see whether viable Caulerpa fragments remain and to determine whether additional "post-application" treatment is needed. If needed, post-application treatment options include: dredging of selected patches and

enclosing the site with silt screen using a suction dredge that will extract sediment and plant material to a depth of 20 centimeters; capping of infested areas using a geosynthetic liner and a sediment cap for a year or more; and monitoring and spot eradication to control resurgence from residual *Caulerpa* rhizoids.

Because fishing and anchoring of vessels have been identified as potential causes of the spread of *Caulerpa* to different locations, boat access in areas of infestation is either prohibited or restricted in certain areas of Agua Hedionda Lagoon. In Agua Hedionda Lagoon, all fishing and anchoring of vessels within the inner lagoon is prohibited for an initial period of one year. In addition, recreational access to the Lagoon is regulated by establishment of zones with varying types of use limitations or restrictions to protect and facilitate eradication and surveying work. The City of Carlsbad regulates vessel access to Agua Hedionda Lagoon under Chapter 11.24 of the Carlsbad Municipal Code. Under this authority, the City has adopted an interim lagoon management plan that retains recreational uses while facilitating eradication and survey efforts. In Huntington Harbor, temporary restrictions were requested of homeowners by the homeowners' association during initial treatment work. Shallow ponds are already closed to harbor traffic and are used only by paddleboats and swimmers. The infestation in the adjacent portion of the harbor that is accessible to boats is considered to present a low risk of spreading, and therefore no harbor closures have been necessary. On September 26, 2002, Governor Davis signed AB 1059 into law (See California Harbor and Navigation Code §660, 660.1). This statute requires the Department of Boating and Waterways, upon request of the Director of Fish and Game, or his or her designee, to restrict or prohibit, based on the request, recreational vessel activity on waters of the state in general until January 1, 2004, and in Agua Hedionda Lagoon in San Diego County indefinitely, if that vessel activity would hinder or jeopardize efforts to control or eradicate *Caulerpa*.

Surveying and Surveillance

During early eradication efforts, high intensity surveys were used in Agua Hedionda Lagoon to locate *Caulerpa* infestations. However, as biomass has been greatly reduced within the lagoon, even more intensive "eradication level" surveys have been adopted throughout the entire lagoon. Eradication level surveys consist of SCUBA divers swimming side-by-side one meter wide transects to search for *Caulerpa*. Similar surveys are used in Huntington Harbor. During each complete survey of Agua Hedionda Lagoon, divers swim approximately 590 miles of lagoon bottom. At Huntington Harbor, divers swim approximately 50 miles of transect line in each survey. Using the eradication level survey methods, the eradication team can identify even small fronds of *Caulerpa*. However, surveys are not one hundred percent effective; some *Caulerpa* is missed. As a result, continued surveys are necessary, even after the first negative results are obtained.

High intensity surveillance surveys are employed regularly in waters that are considered to be most at risk of a new *Caulerpa* infestation. These surveys use divers that are towed at 1 to 1.5 knots along transects by a small boat using survey-grade differential GPS. Surveillance surveys occur in areas at risk of infestation, including outside the lagoon mouth of Agua Hedionda Lagoon and the entire Huntington Harbor (although infestation is currently limited only to two

small ponds and a small portion in the harbor itself). Surveillance level surveys are being used in prioritized waters along the southern California coastline. Surveillance surveys along the coastline have been performed at Alamitos Bay, Oceanside Harbor, Anaheim Bay, Mission Bay, Carlsbad offshore, Marina Del Rey, Ballona 'Del Ray' Lagoon, Newport Bay, Dana Point Marina, San Luis Rey River, San Diego River, Channel Islands Harbor, Ventura Harbor, Santa Barbara Harbor, and King Harbor. These surveys are usually performed using side-scan sonar, towed video cameras, and aerial surveys. Spot checks by divers are used in areas of dense vegetation or where remote sensing tools indicate "suspicious" survey returns. Divers also survey along beaches, walls, riprap, piers, discharge points, and any other potential entry points for Caulerpa.

5. CONFORMITY WITH COASTAL ACT POLICIES

5.1 Placement of Fill in Coastal Waters

Coastal Act §30233(a) states in part:

The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- (1) *New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
- (2) *Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
- (3) *In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.*
- (4) *In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*

- (5) *Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- (6) *Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
- (7) *Restoration purposes.*
- (8) *Nature study, aquaculture, or similar resource dependent activities.*

Coastal Act §30108.2 defines "fill" as "earth or any other substance or material ... placed in a submerged area." The sheets and pipes, sand bags, rope and stakes that are placed on the seafloor for eradication purposes constitute fill under this definition. The total area of seafloor currently impacted by the fill material is approximately 2.3 acres in Agua Hedionda Lagoon and 2.1 acres in Huntington Harbor, for a total fill area of 4.4 acres.

Coastal Act § 30233(a) authorizes a project that includes fill of open coastal waters only if it meets three tests. The first test requires the proposed activity to fit into one of eight categories of uses enumerated in Coastal Act §30233(a)(1)-(8). The second test requires that there be no feasible less environmentally damaging alternative. The third and last test mandates that feasible mitigation measures be provided to minimize the project's adverse environmental effects.

(1) Allowable Use Test

Coastal Act §30233(a)(7) allows for fill of coastal waters for "restoration purposes." The proposed project is a restoration project to restore marine resources via the eradication of an invasive, non-native species, and thus meets the allowable use test.

(2) No Feasible Less Environmentally Damaging Alternative

After qualifying as an allowable use under §30233(a), the Commission must find that there is no feasible less environmentally damaging alternative to the proposed project, *i.e.* the enhancement plan submitted to the Coastal Conservancy. There is no known effective alternative to the proposed use of chlorine treatments to eradicate *Caulerpa*. The SCCAT assessed two potential alternatives to chemical treatment, mechanical removal and no action, but found both to be more environmentally damaging alternatives and less effective. The SCCAT also investigated alternative chemical treatments, but were either ineffective or resulted in deleterious residual toxicants in the marine environment.

Mechanical Removal

The mechanical removal of *Caulerpa* is a means to reduce the volume of biomass requiring herbicide treatment and to protect against potential discharge of viable fragments that may be liberated by dying plants after herbicide treatment. Tests have included manual collection of alga by divers and two efforts using different suction dredging techniques (aspirator and centrifugal pumps) to remove plants and sediments.

Diver harvesting is moderately successful at removing the experimental volumes of material; however, considerable plant breakage occurs where rhizoids are firmly anchored in sediments or are intertwined with eelgrass rhizomes. To test the efficacy of suction dredging, small portions of an eelgrass bed were extracted using two different dredges. Suction dredging has a significant benefit over hand extraction in that smaller fragments of damaged algae are generally vacuumed up around the dredge nozzle and few escape the immediately vicinity of the nozzle. However, the dredging approach also has several drawbacks relative to hand harvesting. The suction nozzle is not as controlled as hand harvesting and many more small fragments would be generated. Some of these fragments would be released far beyond the influence of the suction head, where it would be necessary to collect them.

The two dredges evaluated produced substantially different results in that the aspirator type lacked adequate power to extract eelgrass and sediments. Plugging, burping, backwash, and the plume associated with these problems caused substantial resuspension of small fragments and thus would aid the spread rather than the collection and containment of *Caulerpa*. Although the centrifugal pump dredge proved more powerful (assuming gallons per minute-GPM), it was also not capable of collecting all the plant debris. The greatest impediment to dredging of *Caulerpa* is the need to efficiently treat large volumes of water to remove viable plant material, while at the same time either dispose of clean water or return it to the lagoon. Approximately 11,000 GPM may be generated by the dredging operation and the total liquid volume may reach several million gallons.

Other Chemical Treatments

Many chemical treatment options were considered for use. These included such typical herbicides used in freshwater aquatic weed control as Diquot, Hydrothol 181, Cutrine, and Simazine. These treatments proved to be less effective than chlorine, and some are extremely dangerous to apply. Some of the tested herbicides also leave a copper residual that is highly toxic not only to plants but also to invertebrate animals.

No Action Alternative

Under the no action alternative, the *Caulerpa* infestation would continue unabated. Considering the invasive nature of *Caulerpa*, the alga would continue to spread within Agua Hedionda Lagoon, Huntington Harbor, and within any other areas suitable to the growth of algae. *Caulerpa* would displace native vegetation, sensitive eelgrass habitat, and have long-term, adverse, and significant impacts on fish and aquatic ecosystems.

The Coastal Commission therefore finds there is no feasible, less environmentally damaging alternative to the proposed enhancement plan, and therefore the enhancement plan is consistent with the second test of Coastal Act §30233(a).

(3) *Feasible Mitigation Measures*

The final requirement of Coastal Act § 30233(a) is that filling of coastal waters may be permitted only if feasible mitigation measures have been provided to minimize any adverse environmental impacts. The Commission typically requires the removal of structures (e.g., pipelines, cables, and other oil and gas infrastructure) from the seafloor after their useful life. The purposes of this requirement include (a) removal of debris from coastal waters; (b) preventing harm to marine species (e.g., entanglements); (c) removing a navigational hazard; (d) removing a hazard to beach and ocean users; and (e) eliminating interference with commercial fishing. Exceptions include circumstances where the environmental impacts of removal outweigh the benefits of removal. For instance, in the past the Commission has determined that buried pipelines located in water depths greater than 15 feet that do not pose a hazard to navigation, commercial fishing, or other ocean users, may be abandoned in place.

In the case of the *Caulerpa* eradication project, the express purpose of the placement of the sheets and pipes, rope, stakes, and sand bags is to prevent an adverse environmental impact, *i.e.* the spread of *Caulerpa*. The sheets provide localized treatment and ensure protection of other biological resources. However, once eradication efforts are complete, and if these materials are left in place, they could potentially degrade the marine environment. The persistence of structures could displace soft bottom habitat and associated organisms. Free-floating fragments of the sheets could be mistaken by marine mammals and birds as food, and could end up on beaches as debris. Removal of the materials after eradication efforts are complete will eliminate these potential adverse impacts and allow for the restoration of the benthic habitat to its pre-infestation condition.

However, removal of the tarps and other materials also raises environmental concerns. *Caulerpa* treatments are currently taking place in high depositional environments (e.g., Agua Hedionda Lagoon). Accordingly, these materials may be buried deeply after some time. Infaunal organisms and eelgrass may colonize surface sediments. Removal of the materials will kill the organisms that have colonized. Removal will also cause suspension of fine sediments that may have negative affects on adjacent communities (e.g., smothering). In addition, NMFS does not know at this time when it is safe to remove the materials so that *Caulerpa* is not exposed and spread.

It is therefore premature in the eradication process to determine if in-place abandonment of the tarps and other materials is warranted or desirable. The decision to remove or abandon in place the materials needs to be made on a "location-by-location" basis once eradication efforts are determined by the SCCAT to be completed in a given area. In consistency determination CC-051-02, NMFS has agreed to submit to the Commission within six months of determining an eradication effort to be complete, a proposed plan for disposition of the *Caulerpa* eradication materials. The plan shall include (a) a site-specific (location by location) proposal to remove or abandon in place the tarps, rope, piping and gravel bags; (b) a detailed description of the method(s) and equipment proposed to remove materials; and (c) a site-specific assessment of why removal is not proposed if NMFS proposes any in-place material abandonment.

Commission staff will then bring a recommendation to the Commission as to whether the project, based on the proposed plan, is still consistent to the maximum extent practicable with the enforceable policies of California's Coastal Management Program.

With implementation of the disposition plan, the Commission finds that any adverse environmental impacts due to the placement of the sheets and pipes, sand bags, rope and stakes will be minimized. The Commission thus finds that the project is consistent with the final test of Coastal Act § 30233(a).

5.2 Marine Resources and Water Quality

Coastal Act §30230 states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Coastal Act §30231 states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

The potential impacts associated with the enhancement plan's eradication and treatment activities for invasive *Caulerpa* in Agua Hedionda Lagoon and Huntington Harbor include:

(1) water quality impacts from chlorine treatment, (2) impacts to benthic habitat from smothering, shading and chlorine treatment, and (3) impacts to eelgrass from smothering, shading and chlorine treatment.

5.2.1 Water Quality

Water quality impacts may result from unintentional releases of chlorine into the waters of Agua Hedionda Lagoon or Huntington Harbor. However, during eradication development and implementation at Agua Hedionda Lagoon, and during eradication at Huntington Harbor, water samples were collected from under the sheets, from immediately adjacent to them, and from the water column in the vicinity of the sheets. Free chlorine was undetectable outside the tarps in all cases, while concentrations remained adequate under the tarp to treat the *Caulerpa*. Chlorine demand under the enclosures is high due to the large amount of organic material. Any chlorine

that is not consumed through reactions with *Caulerpa* is quickly consumed by the substrate that has a high organic content. Measurements have indicated that once the treatment pucks have fully dissolved, chlorine is undetectable under the sheets within 24 hours.

If security of an enclosure were compromised in some way, the release of water from under an enclosure would be diluted immediately in the water column. When considering the volume of water in the immediate area of the sheet in relation to the volume under the sheet, any escaped chlorine would be diluted to an undetectable level and would present no threat to marine life. In addition to taking physical measurements, divers working on the project have not observed any ill effects on plants or animals of chlorine treatment beyond the enclosed areas, although some fish are attracted to the sheets. The non-native yellowfin goby (*Acanthogobius flavimanus*), which is the most abundant species in the Huntington Harbor ponds, quickly colonizes and burrows under the margins of the sheets in large numbers. The SCCAT believes that if there were inhospitable conditions around the sheet edges, these fish would not colonize the sheet fringes so aggressively.

5.2.2 Benthic Habitat

Impacts to benthic habitat may occur due to smothering or shading by the sheets and sand bags, and from direct chlorine exposure. Benthic organisms in treated areas are likely to experience high mortality. However, the area of treatment is small, currently a total of 4.4 acres, and once eradication is eventually completed, these areas are expected to naturally recover and animals will recolonize the impacted areas. In addition, the *Caulerpa* eradication enhancement plan will produce significant environmental benefits for benthic habitat and organisms in the form of restored habitat. If *Caulerpa* were left to expand unchecked, it would rapidly colonize and monopolize the seafloor, leaving no habitat available for native benthic vegetation and organisms.

5.2.3 Eelgrass

Eelgrass present in Agua Hedionda Lagoon or Huntington Harbor may be adversely impacted due to smothering and shading by the enclosures and sand bags, and from direct chlorine exposure. However, the area of eelgrass potentially impacted is relatively small, a maximum potential impacted area of 2.3 acres (the current amount of area covered by treatment materials in Agua Hedionda Lagoon). The actual eelgrass loss has been far less than that, as reported by SCCAT resource agencies, NOAA Fisheries and CDFG, although the exact area is not known. Despite these potential impacts to eelgrass, the overall impact of *Caulerpa* eradication efforts will be beneficial, as the eradication of *Caulerpa* will prevent existing eelgrass from being destroyed through the spread of *Caulerpa*, and will restore available habitat for eelgrass that is currently severely threatened. If *Caulerpa* were left to expand unchecked, it would rapidly colonize the seafloor, monopolizing available habitat for eelgrass and eventually destroying large areas of eelgrass. Evidence from Agua Hedionda Lagoon clearly indicates that *Caulerpa* is the competitive dominant species in interactions with eelgrass since *Caulerpa* displaced vast patches of eelgrass before eradication efforts commenced. Therefore, *Caulerpa* eradication work is also eelgrass restoration work, and will have a net benefit for eelgrass and eelgrass habitat. In

addition, some level of eelgrass recolonization of the sediments settling on top of tarps has already been noticed. Therefore, the enhancement plan is consistent with Coastal Act § 30230, which requires that "marine resources shall be maintained, enhanced, and where feasible, restored."

5.2.4 Conclusion – Marine Resources and Water Quality

Based on the above analysis, the Coastal Commission finds that the enhancement plan is consistent with the requirement that "marine resources shall be maintained, enhanced, and where feasible, restored" as required by Coastal Act § 30230. The Commission also finds that the enhancement plan will be carried out in a manner such that the "biological productivity of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained," as required by Coastal Act § 32031. The project is therefore consistent with Coastal Act §§ 30230 and 30231.

5.3 Public Access and Recreation

Coastal Act §30210 states:

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Coastal Act §30211 states:

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Coastal Act §30220 states:

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Coastal Act §30234.5 states:

The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Coastal Act §30214 states:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

- (1) Topographic and geologic site characteristics.*
- (2) The capacity of the site to sustain use and at what level of intensity.*
- (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*
- (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.*

The enhancement plan involves temporary restrictions of public access and recreation in Caulerpa-infested areas and possibly in areas that are infested in the future. These restrictions are already authorized by a new state law and a local municipal ordinance. In addition to AB 1059, the new statute authorizing the California Department of Fish and Game to restrict recreational vessel activity in Agua Hedionda Lagoon, recreational boating in the inner basin of Agua Hedionda Lagoon is also regulated by the City of Carlsbad's municipal ordinance in order to protect Caulerpa eradication and surveying activities. On June 11, 2002, the City of Carlsbad approved a one-year plan to limit, but still provisionally allow, recreational boating in Agua Hedionda Lagoon. Different zones of the Lagoon are restricted or closed on a daily or weekly basis, and the height of wakes left by boats is limited. The overall impact of the restrictions are rotating closures based on the schedule of eradication and surveying work, but access and recreation are still allowed when closures are not in effect. In addition, public notices are posted at the Lagoon identifying which areas are open and closed to recreation on a given day, which will assist the public to identify where recreational activities are allowed.

In Huntington Harbor, temporary voluntary restrictions on entering Caulerpa-infested waters were requested of homeowners by the homeowners' association during initial treatment work. However, no new access restrictions are likely to be necessary in Huntington Harbor, as the shallow ponds infested by Caulerpa are already closed to harbor traffic and are used only by paddleboats. In addition, the infestation in the adjacent area of the harbor that is accessible to boats is considered to present a low risk of spreading Caulerpa, and therefore no harbor closures have been necessary or are foreseen to be necessary.

Section 30214 of the Coastal Act requires that public access policies take into account the time, place, and manner of public access depending on the facts and circumstances relevant to each case. In the case of Caulerpa eradication efforts, temporary public access and recreation restrictions are necessary to perform Caulerpa eradication and surveillance work. This work will protect and restore sensitive marine resources in infested areas and prevent further damage to non-infested areas through prevention of the spread of invasive Caulerpa. Therefore, the enhancement plan is consistent with Section 30214 because Caulerpa eradication activities and public access restrictions in Agua Hedionda Lagoon (and in any potential new infestation areas)

have been developed based on a scientific assessment and consideration of the time, place, and manner of restrictions necessary to protect marine resources.

Therefore, the Commission finds that the project, as conditioned, will be carried out in a manner that will not interfere with the public's access to and recreational use of the coast. The project is therefore consistent with Coastal Act §§ 30210, 30211, 30220, 30234.5 and 30214.

SUBSTANTIVE FILE DOCUMENTS

- Attachment 1: Letter from Coastal Conservancy requesting Coastal Commission approval of enhancement plan, September 27, 2002.
- Attachment 2: Coastal Conservancy's enhancement plan *In Progress Review: Ancillary Data and Observations from Caulerpa Taxifolia Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbor of the Southern California Caulerpa Action Team (SCCAT)*, including maps of Caulerpa-infested areas in Agua Hedionda Lagoon and Huntington Harbor



September 27, 2002

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Executive Director
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Dear Mr. Douglas:

The California State Coastal Conservancy requests that the Coastal Commission review for consistency with the Coastal Act the attached document, "In Progress Review: Ancillary Data and Observations from *Caulerpa taxifolia* Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbor of the Southern California *Caulerpa* Action Team (SCCAT)" (January 2002). Conservancy staff have identified this document as a resource enhancement plan pursuant to Division 21, Chapter 6 of the California Public Resources Code (Coastal Resource Enhancement Projects) and seeks a timely Commission consistency review to facilitate consideration of a \$1 million grant for *Caulerpa taxifolia* (*C. taxifolia*) eradication.

CPRC Division 21, Chapter 6 authorizes the Conservancy to undertake resource enhancement projects subject to several conditions. Section 31252 requires that a resource enhancement project be consistent with an adopted enhancement plan. Section 31258 requires that the Conservancy disburse funds for a resource enhancement project only after the Coastal Commission finds the relevant enhancement plan consistent with the Coastal Act.

The Southern California Wetland Recovery Project (SCWRP) board of governors has recommended that the Conservancy fund ongoing *C. taxifolia* eradication efforts as part of the WRP's FY 2002-2003 Work Program. On Dec. 4, 2002 the Conservancy board will consider the SCWRP board's recommendation. Pursuant to Division 21, Chapter 6 (Sections 31251-31270), possible Conservancy actions include (1) adoption of the above mentioned document, prepared by Merkel & Associates for SCCAT, as an enhancement plan, and (2) authorization of a \$1 million resource enhancement grant to the Agua Hedionda Lagoon Foundation for *C. taxifolia* eradication at Agua Hedionda Lagoon (San Diego County) and Huntington Harbor (Orange County). Given the threat to coastal resources posed by *C. taxifolia*, and given the limited remaining financial resources available for continuing eradication efforts, the Conservancy requests that the Commission review the enhancement

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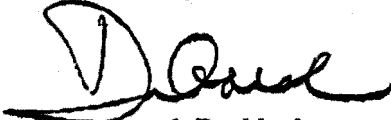
510-286-1015 Fax: 510-286-0470

Addressee
Date

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plan for Coastal Act consistency at the November board meeting in San Diego. While Public Resources Code permits the Commission as many as 60 days to review the plan, prompt Commission action will enable the Conservancy to process the Foundation's proposal in an expeditious manner.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Deborah Ruddock', written over a horizontal line.

Deborah Ruddock
Project Manager